

CLAIMS

1. A tube for rock bolts having either a cable tendon or a rod tendon, said tube being extruded from plastics material and deformed beyond its yield point at each of a plurality of longitudinally spaced apart locations extending along the length of the tube, said deformation at each said location occurring in at least two different directions.
2. The tube as claimed in claim 1 and deformed by inwardly directed compression.
3. The tube as claimed in claim 2 wherein at each said location said inwardly directed compression extends in two different directions making an angle with each other.
4. The tube as claimed in claim 3 wherein said angle is substantially 90° .
5. The tube as claimed in claim 2 wherein at each said location said inwardly directed compression extends in three different directions.
6. The tube as claimed in claim 5 wherein the angle between said three directions is approximately 120° .
7. The tube as claimed in any one of claims 1-6 and able to be looped into a coil.
8. The tube as claimed in any one of claims 1-7 and fabricated from irrigation water supply tube.
9. The tube as claimed in any one of claims 1-8 and fabricated from high density polyethylene (HDPE).
10. A rock bolt having a tendon located within a tube as claimed in any one of claims 1-9.
11. The cable bolt as claimed in claim 10 wherein said tendon is formed from multi-strand steel cable and said bolt is looped into a coil.
12. An end fitting for a rock bolt, said fitting comprising a generally barrel-like shape having a front end, a rear end, a curved side wall and a longitudinal axis, and said fitting further having a tendon passageway extending between said front and rear ends, and a grouting orifice in said front end and leading into said cable passageway.
13. The fitting as claimed in claim 12 wherein said tendon passageway includes a cable anchor.
14. The fitting as claimed in claim 13 wherein said cable anchor includes a frusto-conical wedge.

15. The fitting as claimed in any one of claims 12-14 wherein said front end is substantially domed.
16. The fitting as claimed in any one of claims 12-14 wherein said front end is substantially flat.
- 5 17. The fitting as claimed in any one of claims 12-16 wherein said rear end is substantially flat.
18. The fitting as claimed in claim 17 wherein said substantially flat rear end is substantially perpendicular to said longitudinal axis.
19. A method of fabricating a tube for a rock bolt, said method comprising the
10 step of radially deforming the side wall of said tube beyond its yield point at each of a plurality of longitudinally spaced apart locations extending along the length of the tube, said deformation at each said location occurring in at least two different directions.
20. The method as claimed in claim 19 including the step of creating said
15 deformation by inwardly directed compression.
21. The method as claimed in claim 20 including the step of: at each said location inwardly directing said compression in two different directions making an angle with each other.
22. The method as claimed in claim 21 wherein said angle is substantially 90°.
- 20 23. The method as claimed in claim 20 including the step of: at each said location inwardly directing said compression in three different directions.
24. The method as claimed in claim 23 wherein the angle between said three directions is approximately 120°.
25. A rock bolt for use in poor ground conditions, said bolt having a near end and
25 a far end, anchor means at said far end to anchor the far end adjacent the base of a blind hole formed in said ground, and tension means at said near end to tension said bolt after said far end has been anchored, wherein said anchor means comprises at least two anchor devices, each known per se, and connected in series on said bolt adjacent said far end.
- 30 26. The rock bolt as claimed in claim 25 wherein said anchor devices comprise shell anchors.
27. A method of securing a rock bolt in poor ground conditions, said method comprising the steps of:

providing at least two anchor devices, each known per se, at the far end of said rock bolt,

inserting said rock bolt into a blind hole drilled in said ground,

activating all said anchor devices, and

5 tensioning said rock bolt.

28. The method as claimed in claim 27 wherein following tensioning of said rock bolt, said rock bolt is surrounded with grout.